

Remarks by the Honorable Ray Mabus  
Secretary of the Navy  
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Good afternoon. Thank you, Majority Leader Harry Reid, for your introduction, and more than that, for your leadership – your leadership on issues of energy independence, on energy security - and for hosting this conference that has brought together some of the best thinkers, some of the most talented people in the area.

I also want to thank Jon Podesta of the Center for American Progress for fostering the debate on energy policy while giving us a really thoughtful analysis and close examination of the challenges we face in the country.

You know, people wonder, I think, all right, why the Navy? Why the Navy and Marine Corps? Why the interest in alternative energy? Why should our military be concerned about this? The answer is pretty straightforward: We buy too much fossil fuel from potentially or actually volatile places on earth. The vice president said it this morning. We buy our energy from people who may not be our friends. We would never let the countries that we buy energy from build our ships or our aircraft or our ground vehicles, but we give them a say on whether those ships sail, whether those aircraft fly, whether those ground vehicles operate because we buy their energy.

There are great strategic reasons for moving away from fossil fuels. The main one is the one I just said – where we buy these supplies of fossil fuels. There's also the matter of price shock and supply shock. Every time the cost of a barrel of oil goes up a dollar, it costs the United States Navy \$31 million in extra fuel costs. When the Libya crisis began and the price of oil went up, the Navy faced a fuel bill increase of over \$1.5 billion.

There are really sound tactical reasons, too. Just think of the difficulty of getting a gallon of gasoline to a Marine front-line unit in Helmand province in Afghanistan. You have to take that gallon of gasoline across one ocean – either the Atlantic or the Pacific. Then you take it over land, either north through Pakistan or south through the Northern Distribution Network by convoy, and then either across the Hindu Kush mountain range or across the Amu Darya River until you reach that Forward Operating Base.

And it's costly, but it's costly in more ways than just money. We import gasoline more than anything else – gasoline and water – more than anything else into Afghanistan. For every 50 convoys of gasoline we bring in, we lose a Marine. We lose a Marine, killed or wounded. That is too high a price to pay for fuel.

So because of those reasons; because of those compelling strategic and tactical reasons; because it is frankly a vulnerability for our military – when you're a military force, you look at vulnerabilities of your actual or potential adversaries, but you had better look at your own

vulnerabilities, as well. And one of our most glaring vulnerabilities is how we get and how we use energy, and it's a vulnerability we have to address.

And so because of that, two years ago, soon after I became Secretary, I came up with five goals for the Navy and Marine Corps in terms of energy, the broadest one of which is what Senator Reid talked about – that by no later than 2020, the Navy and Marine Corps, both afloat and ashore, will produce at least half of its energy from non-fossil-fuel sources.

We are making a lot of progress on that in the last two years. We've done a lot. We are in the process of testing and certifying all our aircraft and surface ships on biofuels. The F-18 Hornet – we flew one of these on biofuels over a year ago, the Green Hornet - I think they made a movie about that, maybe - the Green Hornet went 1.7 times the speed of sound on a mixture of camelina and aviation gas and it didn't notice the difference.

Two weeks ago, we certified the Marine V-22 Osprey – the tilt rotor aircraft – on biofuels; last week, the T-45 trainer. And by the end of the fall, we will have certified every single aircraft that the Navy and Marine Corps fly. We're doing the same thing on our surface ships.

Next weekend, Labor Day weekend, the Navy's Blue Angels – you know, the most incredible flying outfit you can ever see – will be doing their show at Patuxent River, Maryland, at the Patuxent River Naval Air Station. And for the first time ever, that entire group, the Blue Angels, are going to fly on biofuels...a mixture of biofuels and av. gas.

We're doing other things. I talked about the Marines and their concern about losing Marines and about taking Marines away from what Marines were sent to Afghanistan to do, which is to fight, to engage, to rebuild. Not to guard fuel convoys and not to guard replenishment convoys.

So last year, 3<sup>rd</sup> Battalion, 5<sup>th</sup> Marines were given a lot of alternative energy devices before they went to theater. Now, they weren't given a whole lot of training on it, they were simply given the devices. And 3<sup>rd</sup> Battalion, 5<sup>th</sup> Marines went to Sangin, which at that time was some of the hottest, heaviest fighting in Afghanistan. Now, in the middle of that fight, those Marines reduced their fossil fuel usage anywhere from 25 percent at their command headquarters up to 90 percent at some of the Forward Operating Bases and combat outposts, which are closest to the fight. They did it by using things like portable solar. They did it by things like solar blankets that they were issued. These are flexible solar panels. You stick them in your pack and you use them to power batteries or radios or GPSs.

In the mid-'90s, a Marine company carried 14 radios; today, that same Marine company carries more than 120. That doesn't count the other electronics. And they have to carry the batteries that go along with it. By relying on these solar panels, these solar blankets, those Marines saved almost 700 pounds of batteries per company that they didn't have to haul. And they didn't have to be resupplied every two days with batteries.

The Marines have also taken in solar-powered water purifiers. Making energy where you are, expeditionary energy – the Marines, being Marines have embraced this more enthusiastically than anybody else in our military. And they are making a difference. And today, every Marine unit about to be deployed to theater, part of their training – embedded in their training- is training on how to use alternative energy sources so that we can take convoys off the roads, so that we can take Marines off convoy guard duty.

As Senator Reid mentioned, last spring, President Obama, the commander-in-chief of the American military, tasked three departments – Agriculture, Energy and the Department of the Navy – to come up with a nationwide, geographically dispersed, advanced, drop-in, competitive biofuel industry. Two weeks ago, on August 16<sup>th</sup>, the President announced that our three agencies had come together with a Memorandum of Understanding and that we had a plan to spend \$510 million – up to \$510 million, in coordination with private industry – to make this a reality.

We're using the Defense Production Act, which has been on the books now since 1950 and it's been used many times. And what it says is if there is an industry that is vital to national defense that does not exist today in this country, then the Department of Defense can help start that industry, working with the private sector, private finance, private industry on at least a 1-to-1 financial basis, to start up that industry. And that's what we're doing with biofuels.

Today, Secretary Steve Chu of Energy, who spoke here earlier this morning, Secretary Tom Vilsack from Agriculture and I announced that we've released a Request for Information to industry. In the next 30 days, we want industry to tell us what kind of technology they see as available. What sort of financial resources are they willing to put in – the financial sector and the agricultural sector and the industrial sector – willing to put into this effort? Where do they think these facilities should be located? How, in the overall scheme of things, will this fit in?

We're going to make this a competitive industry – competitive in price, competitive in supply. And the one thing extra the Navy brings is we bring the market. To flip the line from *Field of Dreams*, if the Navy comes, they will build it.

The Department of Defense uses more energy than any other single entity in the United States. The Department of Defense uses 90 percent of all the energy that the federal government uses – fossil-fuel energy – and that's nearly 2 percent of all the energy that America uses.

We have the market and we are willing – if industry can make the biofuels that we need with the characteristics that we need, we're willing to sign offtake agreements and be that market, create that market, be that initial market so then it can spread. And the military has done this over and over again. You look at the Internet. You look at GPS. You look at flat-screen TVs. The military has led and then the civilian market catches up with it.

Biofuels will be an important part of what we do as we transition away from fossil fuels in the Navy and Marine Corps, but it's only one part. We're looking at all sorts of other technologies. While we are a seagoing service and while the Navy and Marine Corps are the

most formidable expeditionary fighting force the world has ever known, we also have a few land facilities, too.

The Navy and Marine Corps have 3.3 million acres of land, 72,500 buildings. We have tripled our solar in the last year. This year, we're on track to double that again. By the time we have built out the solar power that we have on the drawing boards today, we'll have enough power to power a city the size of Norfolk, Virginia.

But we're also looking at wind power and geothermal and hydrothermal, waves – at anything that will produce homegrown, renewable, alternative energy for use by the Navy and Marine Corps.

We have some requirements. One is that any sort of fuel, whether it's biofuel or anything else, has to be drop-in. We've got most of the ships we're going to have in 2020. We've got most of the aircraft we're going to have in 2020. We're not going to go and change the engines. Fuel has got to work on the engines and the equipment that we've got today.

Second, it's got to be made in America. We are not going to trade one form of foreign energy for another form of foreign energy.

Third, it should not take food out of production. And industry and a lot of the people in this room, here, we already know how to do that; second- and third-generation cellulosic biofuels from algae, [alternative energy] from waves and from landfills like Marines are already doing at Camp Pendleton and Albany, Georgia.

We are moving in a lot of different areas. Today, we're the first service to build to LEED Silver Standards. In fiscal year '12, which starts in a month, every single building we build is going to have to have a Gold LEED option. And in FY13, every building that we build will be mandated to be Gold LEED. And we're doing this absolutely inside the current budget. Gold LEED will not cost a single penny more than the way we're building buildings today.

We have the first Platinum LEED building at Camp Pendleton – the Wounded Warriors Center for our wounded Marines. We are doing things like China Lake, the naval base here in California – the naval air station, which, through geothermal energy, is now producing more energy than it uses. We're giving energy back to the grid. And by 2020, at least half of all our land bases will be at net zero and will pull no energy off the grid.

For all the alternative energies that we're looking at, we also have to look at efficiencies, too. We've got to do the same mission, just use less energy to do it. We're looking at that in a lot of ways. We're doing stuff like putting smart meters on all our bases so that we know where energy is used. I went to a naval base about a year ago, now, and one thing that's sort of interesting – when I first became Secretary, I'd go to a base or to a ship or to a Marine installation and my briefings would be good but they would be all over the board.

Today when I go, the first thing they want to talk about is energy. At this particular naval base, the CO said, I knew you were coming so I got a copy of my energy bill, my electric bill. I

just wanted to see how much I was spending. And he showed it to me. Pretty simple – this is a big base. It had a couple of lines about where things were going and specific uses of energy, and then it had 85 percent line loss – 85 percent of the energy that was going onto that base and we didn't know where it was being used.

We didn't know which buildings were the most efficient; we didn't know which activities were the most efficient; we didn't know anything about it. But now, because we've got smart meters on every single building, every single facility we have, we do know. We do know what our peaks are; we do know who's doing a good job and who's not; we do know how we can improve.

We're doing some other things. We've launched the first hybrid ship, the *USS Makin Island*. The *Makin Island* was built in my home state of Mississippi, in Pascagoula. It's a big-deck amphibious ship, one of the biggest ships we have. And instead of just a normal drive, it has an auxiliary drive that's electric that drives the ship at speeds of under 12 knots. On its maiden voyage from Pascagoula around South America to San Diego, where it's going to be home-ported, at then-fuel costs – and fuel was a lot cheaper a year ago than it is today – at then-fuel costs, it saved almost \$2 million on that first voyage. Over the lifetime of that ship, at 2010 fuel prices, that ship will save a quarter of a billion dollars in fuel.

We are beginning to look at making energy a determination in all our new contracts. How will the platform or weapons system – what kind of energy will it use and how will we get it? And for the person building it for that company that's going to build it, how are you doing on energy usage? What is your footprint? Are you using alternative energy to build our weapons systems, to build our platforms or not?

So I started this off by, why in the Navy? Well, the Navy has a history of leading in energy. In the 1850s, we went from sail to coal. In the early part of the 20<sup>th</sup> century, we went from coal to oil. In the 1950s, we pioneered the use of nuclear power for propulsion. And today, we're moving into renewable, alternative energy.

Now, every one of those points I mentioned, at every single one of them, there were folks who said, you guys are nuts. You're trading one form of energy, which is absolutely proven, like the wind, that we've been using for thousands of years for one that's not proven. And oh, by the way, it's going to be more expensive. You're going to have to have all those folks shoveling coal. You're going to have to build coaling stations all around the world.

And those usually – in the 1850s, the people saying that, were the admirals of the U.S. Navy. When we moved to oil in the early part of the 20<sup>th</sup> century, the same argument was made. We've got all these coaling stations around the world. Why are you switching? We know that coal works. We don't know that oil does. The same thing with nuclear in the '50s – it's too dangerous. It's too unpredictable. Don't do it.

And I am absolutely convinced that the folks who say that what we're doing today is a fad or is somehow too expensive, too exotic, you shouldn't be doing it, are going to be just as wrong as the folks were every single time in the past. If you read stuff like *The Tipping Point* or

*Chaos Theory*, the proposition is that systems tend to stay the way they're going, pretty much status-quo, for a long, long time and then they just suddenly change, almost overnight.

We've seen it in our recent lifetimes with the Internet, with, as the Vice President talked about, smart phones. Senator Reid said I was ambassador to Saudi Arabia. I left in 1994. Nobody had a cell phone then and the Internet was shaky, at best. Remember those green screens that sometimes worked and sometimes didn't? When I came back, two years later, to the United States, everybody had a cell phone and everybody was connected to the Internet. And that was a tipping point.

And I think that we are getting close to the tipping point on energy where one form of energy that we've been using for a long time will suddenly change. And I think the military can help lead the way to doing that. For 235 years, the United States Navy and the United States Marine Corps led this country. They have been and are the most formidable expeditionary fighting force the world has ever known, and we've been that way for 235 years.

By using alternative energy, by changing the way we use and produce energy, we're going to continue to be the most formidable expeditionary fighting force the world has ever known, and we're going to continue to do what the Navy and the Marine Corps have always done: innovate, adapt and come out on the other side victorious. Thank you very much.